

RO

3400 Forest Pest Management

September 4, 1982

Functional Assistant Trip Naches RD

Forest Supervisor, Wenatchee NF

On August 25, 1982, Gregory M. Filip, Plant Pathologist from the Forest Pest Management Staff, Regional Office, visited the Naches Ranger District, Wenatchee National Forest. Purpose of the visit was to examine several areas suspected of being affected by root diseases. He was accompanied by Mark Loewen, District Silviculturist.

The first area they visited was the Thunder Basin Sale. Grand fir on about 100 acres of the sale area exhibited scattered mortality caused by the root disease fungi, *Armillaria mellea* and *Fomes annosus*. Mortality caused by *Phellinus weirii*, cause of laminated root rot, was not evident in the stand.

Armillaria mellea frequently kills trees, especially grand fir, that are weakened or stressed by other factors. Many of the trees with *Armillaria mellea* also had been attacked by the fir engraver, *Scolytus ventralis*. The widely scattered nature of tree mortality in the area is further evidence that the disease is acting as an opportunist on weakened trees and not as an aggressive pathogen.

Fomes annosus can cause mortality of grand fir but is more damaging in southern Oregon and California white fir. Most damage caused by *F. annosus* in grand fir in Washington occurs as a butt or heart rot and is associated with severe wounding. Extensive areas of mortality caused solely by *Fomes annosus* are not common in Washington. Like *Armillaria*, *annosus* root rot is often associated with fir engraver attacks.

Silvicultural operations aimed at improving stand vigor, while minimizing additional tree wounding should reduce damage caused by *Armillaria* and *annosus* root rots. Also, favoring Douglas-fir, western larch, and ponderosa pine will reduce damage, especially that caused by *annosus* root rot.

The second area they visited was the Westside Sale of about 52 acres. This area is near the District seed orchard and evaluation plantation site where Forest Pest Management conducted an intensive root disease survey in 1980 (see Symptom Evaluation of Conifers Infected with Root Disease in a Proposed Seed Orchard and Evaluation Plantation Site on the Tieton Ranger District, Wenatchee National Forest, Washington). At least one-third of all the stumps examined on this site were infected by either *P. weirii*, *A. mellea*, or *F. annosus*, and were primarily grand fir.

The lower half of the Westside Sale Area has scattered mortality caused by *P. weirii*. Most probably *A. mellea* and *P. annosus* are also present since they were found in the adjacent seed orchard. The upper half of the sale area has several dead trees, numerous enough and in such close proximity so as to call the entire 22 acres infected. Living trees are either relatively resistant species (ponderosa pine and western larch), or are Douglas-fir and grand fir that are infected but as yet symptomless or are escapees because of small size or location in relation to inoculum.

Current District management calls for delayed treatment in the lower half of the area and overstory removal with pine and larch left as seed trees in the upper half of the area. Also, advanced pine and larch regeneration will be saved whenever possible. The management goal will be to achieve a high proportion of pine and larch, the more root disease-resistant species, in the present and future stand. We wholeheartedly agree that this would be the best and most practical treatment to reduce incidence of mortality in the upper half of the stand and also in the lower half when harvested. Some larch dwarf mistletoe (*Arceuthobium laricis*) was present in overstory trees, but removal of these trees before the understory larch reaches 3 feet tall or 10 years old, whichever occurs first, will greatly reduce disease spread from overstory to understory. Larch dwarf mistletoe does not damage ponderosa pine.

They also examined the seed orchard and evaluation plantation site which was planted with Douglas-fir last year. Some seedling mortality was evident. However, none of this appeared to be caused by root diseases. Mortality caused by root diseases, if present, probably will not occur until seedlings are several years old and generally will not be substantial until the orchard is 10 to 15 years old.

If Forest Pest Management can be of further assistance, please contact us.

RANDALL F. PERKINS

PAUL E. BUFFAM, Director
Forest Pest Management

cc: Mark Loewen, Naches RD
Monte Bickford, Wenatchee NF

GMF11p:lmc